

## ***Allomedmassa*, a new spider genus from evergreen forests of Southeast Asia (Araneae: Corinnidae)**

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***Allomedmassa*, a new spider genus from evergreen forests of Southeast Asia (Araneae: Corinnidae).** - *Allomedmassa* gen. nov. is established for three relatively large, non ant-mimicking species of the subfamily Castianeirinae from evergreen forests of Thailand and Borneo. The new genus can be distinguished from other Asian Castianeirinae genera by the strongly convex dorsal surface of its carapace, by the sigmoid sperm duct of the palpal organ, by the strongly sclerotized embolus, and by the elaborate retrolateral tibial apophysis of the palp. Female copulatory orifices are greatly enlarged, leading to elongated spermathecae. On the basis of morphological similarities, *Allomedmassa* gen. nov. appears closely related to *Medmassa* Simon, 1887. Three species are described: *A. mae* sp. nov., *A. day* sp. nov., and *A. deelemanae* sp. nov.

**Keywords:** Castianeirinae - *Medmassa* - alpha taxonomy - biodiversity.

### INTRODUCTION

The Castianeirinae comprises a large number of ant-mimicking spiders. This subfamily is species-rich and common throughout the forests of the Oriental Region. Unfortunately, our knowledge of Oriental spiders is generally poor: Most early descriptions in Latin do not allow us to recognize these species. As a result, relatively few taxa have been revised; many of them have never been mentioned since their initial descriptions more than a century ago. A comprehensive book on the forest spiders of Southeast Asia published by Deeleman-Reinhold in 2001 is a successful attempt to solve this problem. The obscure taxonomic status of several taxa has been resolved and illustrations for each species were provided. In her revision of Asian Corinnidae, Deeleman-Reinhold (2001) added two new genera and a considerable number of new species to the subfamily Castianeirinae. Currently, 13 castianeirine genera are recognized from the forests of Southeast Asia. These are: *Aetius* O. P.-Cambridge, 1896, *Apochinomma* Pavesi, 1881, *Castianeira* Keyserling, 1879, *Castoponera* Deeleman-Reinhold, 2001, *Coenoptychus* Simon, 1885, *Copa* Simon, 1886, *Corinnomma* Karsch, 1880, *Echinax* Deeleman-Reinhold, 2001, *Humua* Ono, 1987, *Medmassa* Simon, 1877, *Pranburia* Deeleman-Reinhold, 1993, *Serendib* Deeleman-Reinhold, 2001 and *Sphecotypus* O. P.-Cambridge, 1895.

Although members of the Castianeirinae generally have strongly modified somatic structures and often bear a close resemblance to ants, the following three genera do not mimic ant: *Echinax*, *Medmassa* and *Humua*. They are, however, considered members of the Castianeirinae by sharing the following synapomorphies (Deeleman-Reinhold, 2001; Haddad, 2004; Reiskind, 1969): The bulb of the male palp is pyriform, provided with an apical embolus, and lacks a conductor or a median apophysis; the subtegulum is visible on the prolateral side of the bulb in ventral view; the female internal genitalia are elongate, consisting of spermathecae and bursae which are fused together; the epitracheal ridge is protruded; the palpal coxae are short and parallel to each other; the oblique meso-disal surface of the chelicerae is lined with a row of feather-like hairs; legs IV are mostly the longest (except for *A. deelemane* sp. nov.); females have three cylindrical gland spigots on PMS and two on PLS; the epigastric scutum is well-developed.

The Thai castianeirine fauna is not large but relatively diverse. Six genera and eight species are hitherto recognized: *Pranburia mahannopi* Deeleman-Reinhold, 1993, *Corinnomma severum* (Thorell, 1877), *Apochinomma nitidum* (Thorell, 1895), *Serendib suthepica* Deeleman-Reinhold, 2001, *S. volans* Deeleman-Reinhold, 2001, *Echinax panache* Deeleman-Reinhold, 2001, and two undescribed species of *Castianeira* (see also Deeleman-Reinhold, 2001: 305). The new species treated here are large castianeirine spiders (up to about 20 mm long) living on the floor (Thailand) and in the tree canopy (Borneo) of evergreen forests. These spiders are easily distinguishable by the presence of 4-10 pairs of ventral spines on their anterior tibiae, and by the rounded, strongly convex prosoma being attenuated in front. These spiders closely resemble species of *Medmassa*, which contains very agile species similarly living in forest habitats, mainly in the foliage and canopy. The genus *Medmassa* is also present in Africa and Australia. Despite being very similar in general appearance, species of *Allomedmassa* gen. nov. have a significantly different genitalic morphology from those of *Medmassa*.

## MATERIAL AND METHODS

Material from the following collections has been studied: Muséum national d'Histoire naturelle, Paris, France (MNHN); Museo Civico di Storia Naturale 'Giacomo Doria', Genoa, Italy (MSNG); Nationaal Natuurhistorische Museum 'Netherlands Centre for Biodiversity Naturalis', Leiden, the Netherlands (RMNH). Type material of new species will be deposited in the collections of Muséum d'histoire naturelle, Geneva, Switzerland (MHNG) and the Thailand Natural History Museum, National Science Museum Organization, Prathum Thani Province, Thailand (TNHM).

Morphological observation and illustration were made using an Olympus SZX-9 stereomicroscope and an Olympus BX-40 light microscope equipped with drawing apparatus and photographic devices. The dorsal view of internal female genitalia was drawn in cleared state after maceration in 96% lactic acid for 15-30 minutes. Male palps were expanded by placing them in distilled water. Measurements are given in millimeters. In the text 'Fig.' and 'Figs' refer to figures herein, while 'fig.' and 'figs' refer to figures published elsewhere.

Abbreviations used in the text and in the figures are as follows: AER, anterior eye row; ALE, anterior lateral eye; ALS, anterior lateral spinnerets; AME, anterior median eyes; CO, copulatory orifice; E, embolus; FD, fertilization duct; Fe, femur; ID, insemination duct; Mt, metatarsus; P, prolateral tubercle on palpal tibia; PER, posterior eye row; PLE, posterior lateral eyes; PLS, posterior lateral spinnerets; PME, posterior median eyes; PMS, posterior median spinnerets; RTA: retrolateral tibial apophysis of male palp; S, spermatheca; SR, accessory sperm receptacle; ST, subtegulum; T, tegulum; Ti, tibia. Spination: d, dorsal; p, prolateral; r, retrolateral; v, ventral. The corresponding arrangement refers to the number of spines from the proximal to the distal part.

## TAXONOMY

CORINNIDAE Karsch, 1880

*Allomedmassa* gen. nov.

TYPE SPECIES: *Allomedmassa mae* sp. nov.

ETYMOLOGY: The generic name refers to the morphological similarities between this new genus and *Medmassa* (Greek prefix: *allos-* = another, different), and it is feminine in gender.

DIAGNOSIS: Representatives of *Allomedmassa* gen. nov. can be easily distinguished from those of the closely related *Medmassa* by their strongly convex carapace (*Medmassa* generally bears a flat and subcircular carapace). Males can be recognized by a thick, strongly sclerotized embolus base, by a sigmoid sperm duct running medially through the pyriform tegulum (embolus filiform, sperm duct U-shaped in *Medmassa*), and by a complex modification of palpal tibia and RTA (palpal tibia normal, RTA simple in *Medmassa*). Females can be distinguished by their greatly enlarged copulatory orifices, and by the narrow, tubiform spermathecae (copulatory orifices represented by circular pits, spherical spermathecae distinctly enlarged in *Medmassa*).

DESCRIPTION: Prosoma in dorsal view rounded posteriorly, widest at coxae II, with cephalic area abruptly narrowed, strongly attenuated in front (Figs 1-2, 7-8, 26, 28), integument finely reticulated or granular (Fig. 27). Cephalic region convex dorsally, in profile highest at mid length between PME and fovea, gradually sloping posteriorly (Fig. 27). Fovea longitudinal, deep. AER recurved in dorsal view; PER straight or slightly procurved, slightly wider than AER (Figs 1-2, 4, 7-8, 26). All eyes circular, subequal in size, AME distinctly largest (Figs 26, 30); AME separated by their radius, AME and ALE separated by less than their diameter; eyes of posterior row separated by their diameter or more (Figs 4, 30); median ocular quadrangle slightly wider in front than in back, longer than wide. Clypeal height equal to AME diameter (Fig. 30). Cheliceral groove with three promarginal and three (male) to five (female) retromarginal denticles (Fig. 5). Chilum represented by a separated sclerite, triangular, devoid of hair. Palpal coxae (Figs 3, 28) expanded and anteriorly slightly inclined towards each other, anterior margin pale, with thick anteromedial brush of hairs, lateral margin medially excavated. Labium slightly longer than wide, anterior margin straight, posteriorly constricted above bases. Sternum scutiform, strongly convex, rebordered,

anterior margin medially excavated, posterior tip not prolonged between coxae IV, with bluntly pointed triangular extensions opposite coxae and between intercoxal concavities (Fig. 3). Leg formula 4123 or 1234, legs dark orange, usually with distal annulations. All leg segments except patellae and tarsi armed with few spines; spines significantly longer and larger in female than in male; femora with few dorsal spines and prominent anterior prolateral spines; anterior tibiae with 4-10 pairs of ventral spines (Figs 6, 32), spines reduced in *A. mae* sp. nov. and *A. day* sp. nov. (Fig. 6) but longer in *A. deelemanae* sp. nov. (Fig. 32); spines irregularly arranged on posterior tibiae; anterior metatarsi ventrally with two pairs of long and erect spines, as long as or slightly longer than those on tibiae; posterior metatarsi with distoventral brush of hairs; tarsi with two dentate claws (carrying eight denticles on tarsus IV) and claw tufts (Fig. 29). Metatarsi and tarsi lined with two rows of trichobothria; femora, patellae and tibiae without trichobothria.

Opisthosoma elongate-ovoid, clothed with fine, black pubescence (Fig. 27). Dorsum dark gray, with two dorsal muscle apodemes and a pale dorsal pattern consisting of paired pale patches (Fig. 26) or connected chevrons (Figs 1-2, 7-8). Male with large dorsal pigmentation covering entire dorsal surface of opisthosoma (Fig. 26) or with a rectangular, dark brown dorsal pigmentation covering up to two thirds of opisthosomal length, edges diffuse, not sharply defined (Figs 1, 7). Epigastric scutum (Fig. 28) lightly sclerotized, occupying entire epigastric area, not protruded anteriorly. Ventral scutum and post-epigastric scuta absent. Venter of opisthosoma with broad, lightly sclerotized mid-longitudinal band flanked by two longitudinal rows of numerous minute, circular sclerotizations (Fig. 28). Six spinnerets (Fig. 33); colulus digitiform. ALS conical, situated close to each other, two-segmented, basal segment heavily sclerotized, distal segment short but distinct. PMS smallest, not flattened, apical segment with three enlarged cylindrical gland spigots surrounded by aciniform gland spigots. PLS longest, subcylindrical, distal segment short, with two cylindrical gland spigots and aciniform gland spigots.

Male palp devoid of erect spines. Palpal tibia longer than wide or wider than long, heavily modified, with (Figs 10-11, 16-17, 20-21) or without (in *A. deelemanae* sp. nov.) an enlarged prolateral tubercle (P in Figs 10, 16), and a strongly developed retrolateral tibial apophysis (RTA in Figs 9, 11, 15; see also Figs 17, 20, 22, 34-37). Cymbium elongate, its apex deeply excavated ventrally to accommodate embolus. Subtegulum visible on prolateral side of tegulum (Figs 10, 16, 20-21, 34-35). Tegulum elongate-ovoid, with curving sperm duct discernible medially; sperm duct sigmoid, not forming additional loop (Figs 9, 15, 20, 34). Embolus situated apically, relatively thick at base; shape of embolus variable, spiral, corkscrew-shaped or represented by plate-like apparatus (Figs 9, 15, 20, 34-36). Conductor and median apophysis absent.

Epigyne represented by heavily sclerotized plate, with pair of large copulatory orifices (Figs 12-13, 18, 24) leading to elongated insemination ducts. Internal female genitalia consisting of regularly coiled insemination ducts and indistinct posterior spermathecae (Figs 12, 14, 19, 25). Fertilization ducts elliptical.

INCLUDED SPECIES: Two species from Thailand (*A. day* sp. nov. and *A. mae* sp. nov.) and one species (*A. deelemanae* sp. nov.) from Borneo.

NATURAL HISTORY: Members of *Allomedmassa* gen. nov. clearly have a preference for forested areas. In Thailand they can be found on the forest floor of primary evergreen hill forests at moderately high altitudes (770-1900 m). The type specimen from Borneo was collected by tree canopy fogging.

DISTRIBUTION: Thailand and Borneo.

*Allomedmassa mae* sp. nov.

Figs 1-6, 9-12, 15-19

HOLOTYPE: ♂, Thailand, Chiang Mai Province, Chom Thong District, Doi Inthanon National Park, Doi Inthanon, 1650-1700 m, evergreen hill forest, sifting, 11 January 2006, leg. P. Dankittipakul (MHNG, PDC-258).

PARATYPES: Same data as for holotype, 2 ♀ (MHNG, PDC-258). – From type locality, 1-5 October 2006, leg. P. Dankittipakul, 2 ♂ (MHNG, PDC-278). – From type locality, 21-27 September 2008, leg. P. Bunlue, 1 ♂, 1 ♀ (MHNG, PDC-281). – From type locality, pitfall trap, 1-25 August 2002, leg. P. Dankittipakul, 5 ♂, 3 ♀ (MHNG, PDC-278). – Mae Hong Son Province, Huay Nam Dang National Park, Doi Chang, evergreen forest along a trail to the summit, 1700-1900 m, 21 September 2001, leg. P. Dankittipakul, 1 ♂, 1 ♀, 1 juvenile (TNHM).

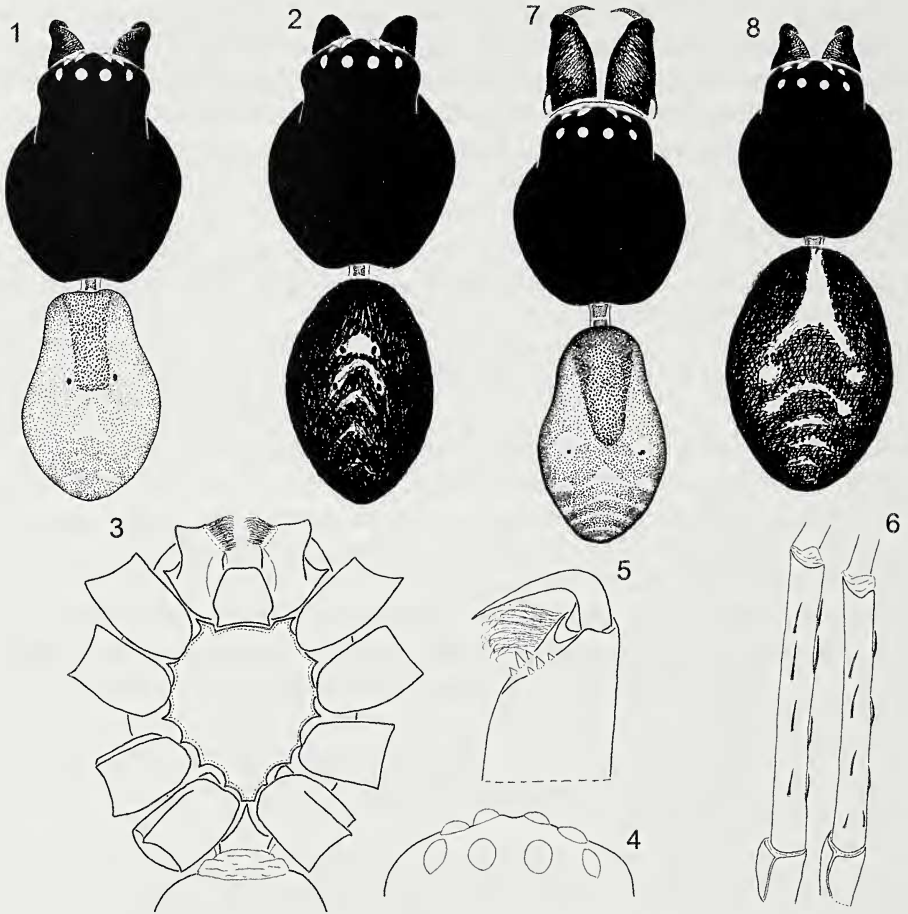
DIAGNOSIS: Males of *A. mae* sp. nov. can be recognized by the thick, relatively long and twisted embolus (Figs 9, 15), the sharply pointed RTA (Figs 9, 11, 15, 17), and the pronounced prolateral tubercle on the palpal tibia (Figs 10-11, 16-17). Females can be distinguished by the elongate-ovoid copulatory orifices (Fig. 18), and by the parallel, tubular insemination ducts connected to poorly defined posterior spermathecae (Figs 12, 19). Males and females have four pairs of reduced ventral spines on tibiae of leg I and II (Fig. 6).

ETYMOLOGY: The first author wishes to dedicate this new species to his mother, as well as every mother with a never-ending supply of unconditional love (Thai: *mae* = mother), invariable noun.

DESCRIPTION OF MALE (HOLOTYPE): Total length 11.2; prosoma 4.8 long, 4.2 wide; opisthosoma 6.4 long, 2.8 wide. Eye sizes and interdistances: AME 1.0, ALE 0.8, PME = PLE 0.7, AME-AME 0.8, AME-ALE 0.5, PME-PME 1.1, PME-PLE 1.2. Leg formula 4123. Leg measurements: Leg I 19.1 (5.2, 7.0, 4.0, 2.9), leg II 17.7 (4.8, 6.2, 4.0, 2.7), leg III 16.0 (4.5, 5.0, 4.1, 2.4), leg IV 20.6 (5.6, 6.7, 6.1, 2.2). Spination: Leg I: Fe, d-11, p-1; Ti, v-2222; Mt, v-22; leg II: Fe, p-1, d-111; Ti, v-2222, Mt, v-22; leg III: Fe, d-111, p-11, r-1; Ti, p-11, v-11, r-11; Mt, v-22; leg IV: Fe, d-111, p-1, r-1; Ti, p-11, v-12, r-11; Mt, p-11, v-1111, r-11.

*Coloration and pattern* (Fig. 1). Carapace black, integument finely reticulate; chelicerae, labium and palpal coxae dark brown; sternum dark reddish brown, rebordered margin reddish; legs orange, except femora dark brown. Opisthosoma elongate-ovoid; anterior median pigmentation lightly sclerotized, rectangular, occupying approximately one third of opisthosoma length; dorsum dark gray, medially with pale folium, posteriorly with three medially disconnected chevrons; venter pale brown, with dark, weakly sclerotized median band running from epigastric furrow to spinnerets.

*Palp* (Figs 9-11, 15-17). Palpal tibia relatively short, devoid of erect spine; ventral surface distinctly elevated, covered with numerous bristles; prolateral tubercle digitiform, well-developed, extending dorsally, distinctly broad at base, gradually tapering towards blunt apex; RTA sharply pointed, apex bent distad; tegulum pyriform,



FIGS 1-8

*Allomedmassa mae* gen. & sp. nov. (1-6) and *Allomedmassa day* gen. & sp. nov. (7-8). (1, 7) Male holotype, dorsal habitus. (2, 8) Female paratype, dorsal habitus. (3) Prosoma, ventral view. (4) Ocular region, dorsal view. (5) Right chelicera, ventral view. (6) Tibiae I and II, ventral view showing pairs of reduced spines.

slightly excavated in distal half of retrolateral side; sperm duct sigmoid, running almost mid-longitudinally; embolus relatively large, corkscrew-shaped, heavily sclerotized.

**DESCRIPTION OF FEMALE (PARATYPE):** Total length 13.3; prosoma 5.7 long, 4.9 wide; opisthosoma 7.6 long, 3.4 wide. Eye sizes and interdistances: As in male. Leg formula 4123. Leg measurements: Leg I 22.8 (6.2, 8.3, 4.7, 3.6), leg II 21.0 (5.7, 7.4, 4.7, 3.2), leg III 18.5 (5.3, 6.0, 4.4, 2.8), leg IV 24.3 (6.6, 7.9, 7.2, 2.6). Spination: Leg I: Fe, d-1; Ti, v-2222; Mt, v-22; leg II: Fe, d-11; Ti, v-2222, Mt, v-22; leg III: Fe, d-111, p-11; Ti, p-11, v-12, r-11; Mt, p-1, r-1, v12; leg IV: Fe, d-111, p-1, r-1; Ti, p-11, v-111, r-11; Mt, p-11, v-12, r-11.

**Coloration and pattern** (Fig. 2). Carapace black; chelicerae, labium and palpal coxae dark brown; sternum dark chestnut-brown; legs orange, except anterior femora

dark brown. Opisthosoma ovoid; dorsum dark gray, mottled with numerous pale spots, cardiac region pale, posteriorly with series of pale chevrons; venter pale, with dark median band running from epigastric furrow to spinnerets. Dorsal scutum indistinct.

*Genitalia* (Figs 12, 18-19). Epigynal region heavily sclerotized, with pair of elongate-ovoid copulatory orifices situated medially; epigynal atria enlarged, sub-triangular; insemination ducts heavily sclerotized, thick-walled, running parallel to mid-line then abruptly moving to lateral side, forming transverse posterior spermathecae; fertilization ducts short, elliptical, originating posteriorly; digitiform accessory sperm receptacles connected to anterior part of insemination ducts, thick-walled, apex provided with numerous pores and gland ductules.

NATURAL HISTORY: *Allomedmassa mae* sp. nov. inhabits evergreen hill forests at relatively high altitudes (1650-1900 m).

DISTRIBUTION: Known only from two localities in northern Thailand.

*Allomedmassa day* sp. nov.

Figs 7-8, 13-14, 20-25

HOLOTYPE: ♂, Thailand, Loei Province, Phu Ruea National Park, evergreen forests surrounding park head office, 900 m, pitfall trap, 9-10 August 2006, leg. P. Dankittipakul (MHNG, PDC-502).

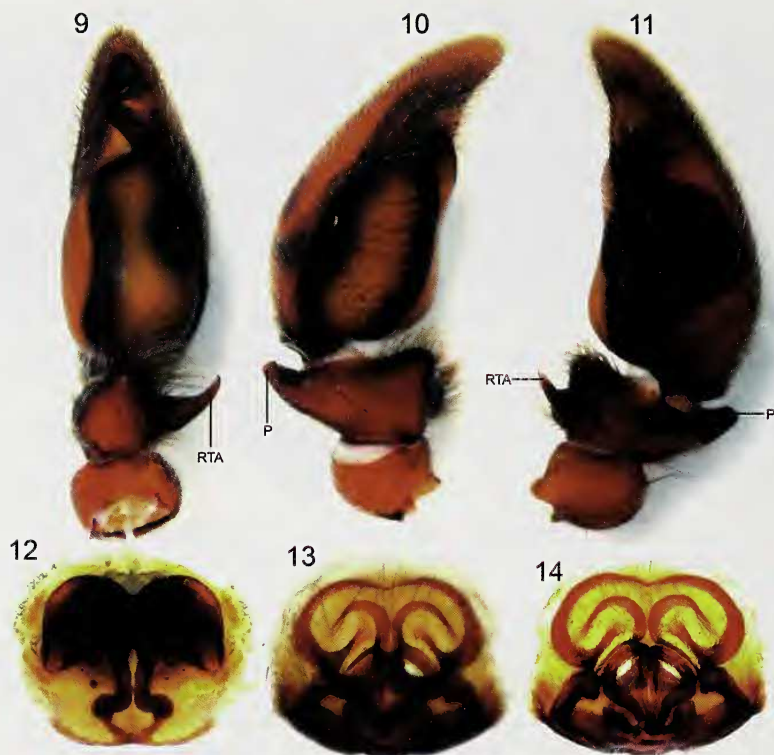
PARATYPES: Nakhon Ratchasima Province, Khao Yai National Park, 770 m, 15 October 2008, leg. S. Pimpisalee, 2♂ (MHNG, PDC-541). – Khao Yai National Park, evergreen hill forest at 1000 m along a trail to view point, 10 August 2006, leg. P. Dankittipakul, 2♀ (MHNG, PDC-502). – Chiang Mai Province, Chom Thong District, Doi Inthanon National Park, Doi Inthanon, 1650-1700 m, evergreen hill forest, sifting, 11 January 2006, leg. P. Dankittipakul, 1♂, 1♀ (MHNG, PDC-258). – Doi Inthanon, 1650-1700 m, evergreen hill forest, pitfall trap, 1-25 August 2002, leg. P. Dankittipakul, 1♂, 2♀ (MHNG, PDC-278).

DIAGNOSIS: Males of *A. day* sp. nov. can be recognized by a bifurcated RTA (Fig. 22), a small, triangular pro-lateral tubercle on the palpal tibia (Fig. 21), and a hook-shaped embolus with broad base (Fig. 20). Females can be recognized by greatly enlarged copulatory orifices fusing anteriorly (Figs 13, 24), and by tubular spermathecae (Figs 14, 25). *Allomedmassa day* sp. nov. can be distinguished from *A. mae* sp. nov. by the presence of ten and eight pairs (instead of four pairs) of reduced ventral spines on tibiae of leg I and II, respectively.

ETYMOLOGY: The first author wishes to dedicate this new species to his father. Originally Hainan Chinese: day = father; invariable noun.

DESCRIPTION OF MALE (HOLOTYPE): Total length 7.7; prosoma 3.3 long, 2.8 wide; opisthosoma 4.4 long, 1.9 wide. Eye sizes and interdistances: AME 1.0, ALE 0.5, PME = PLE 0.7, AME-AME 0.9, AME-ALE 0.5, PME-PME 1.0, PME-PLE 1.5. Leg formula 4123. Leg measurements: Leg I 13.3 (3.6, 4.8, 2.7, 2.2), leg II 12.1 (3.3, 4.3, 2.7, 1.8), leg III 10.8 (3.0, 3.5, 2.7, 1.6), leg IV 14.0 (3.8, 4.6, 4.1, 1.5). Spination: Leg I: Fe, d-11, p-1; Ti, v-2222222222; Mt, v-22; leg II: Fe, d-11, p-1; Ti, v-22222222, Mt, v-22; leg III: Fe, d-11, p-11; Ti, p-11, v-12; Mt, v-22; leg IV: Fe, d-11; Ti, p-1, v-11, r-1; Mt, p-11, v-11, r-1.

*Coloration and pattern* (Fig. 7). Carapace and chelicerae dark brown; labium and palpal coxae brown, distal area slightly paler; sternum brown, margin distinctly darker; legs yellow, except anterior femora dark brown; femora and patellae with dark



FIGS 9-14

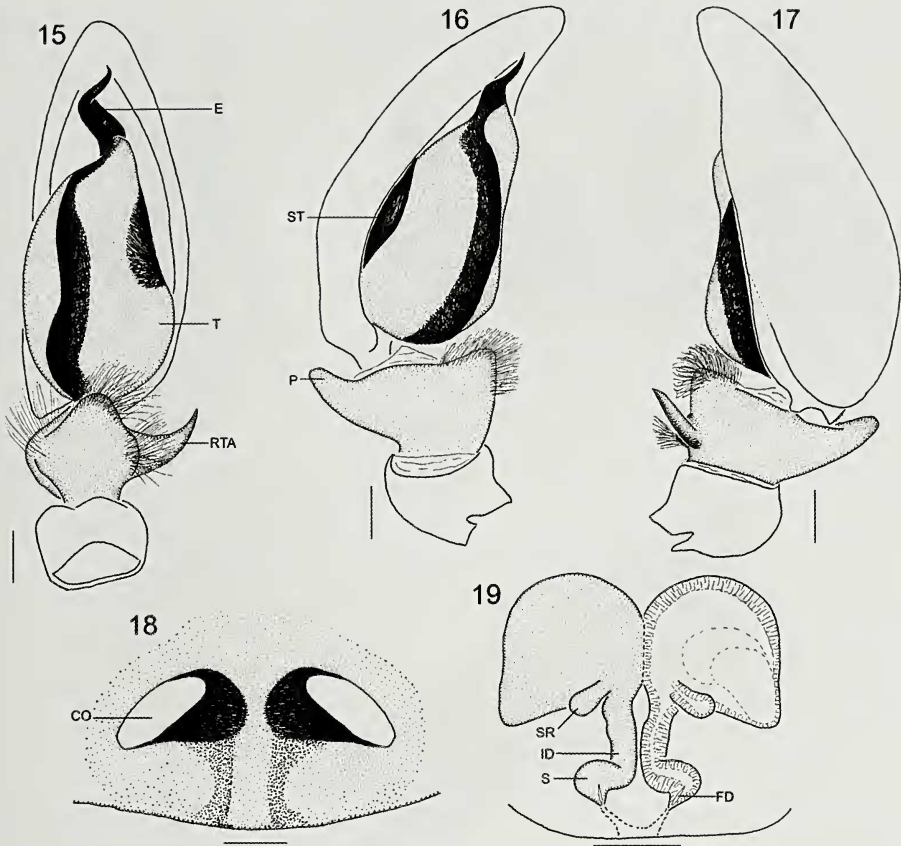
*Allomedmassa mae* gen. & sp. nov. (9-12) and *Allomedmassa day* gen. & sp. nov. (13-14). (9) Left male palp, ventral view. (10) Ditto, prolateral view. (11) Ditto, retrolateral view. (12, 14) Internal genitalia, dorsal view. (13) Epigyne, ventral view. Abbreviation: P, prolateral tubercle on palpal tibia; RTA, retrolateral tibial apophysis of male palp.

greenish distal annulation; tibiae and metatarsi with subproximal and distal annulations. Opisthosoma elongate-ovoid, sparsely covered with black pubescence; anterior median pigmentation triangular, with blunt apex, occupying slightly less than half of opisthosoma length, its margin not clearly outlined; dorsum gray, medially with paired pale patches, followed by seven transverse chevrons and pre-anal ring; venter pale, with dark median band running from epigastric furrow to spinnerets.

*Palp* (Figs 20-23). Palpal tibia cylindrical, with slightly elevated apicoventral surface (Fig. 20); prolateral tubercle triangular, heavily sclerotized, its apex blunt (Fig. 21); RTA bifurcated in retrolateral view (Fig. 22); tegulum ovoid, slightly excavated meso-prolaterally, with sigmoid sperm duct running medially; embolus short, black, hook-shaped, apex acutely pointed, directed prolaterad.

**DESCRIPTION OF FEMALE (PARATYPE):** Total length 7.5; prosoma 3.2 long, 2.8 wide; opisthosoma 4.3 long, 2.0 wide. Eye sizes and interdistances: As in male. Leg formula 4123. Leg measurements: Leg I 12.9 (3.5, 4.7, 2.7, 2.0), leg II 12.0 (3.2, 4.2, 2.8, 1.8), leg III 10.7 (3.0, 3.4, 2.6, 1.7), leg IV 13.8 (3.7, 4.5, 4.1, 1.5). Spination: Leg





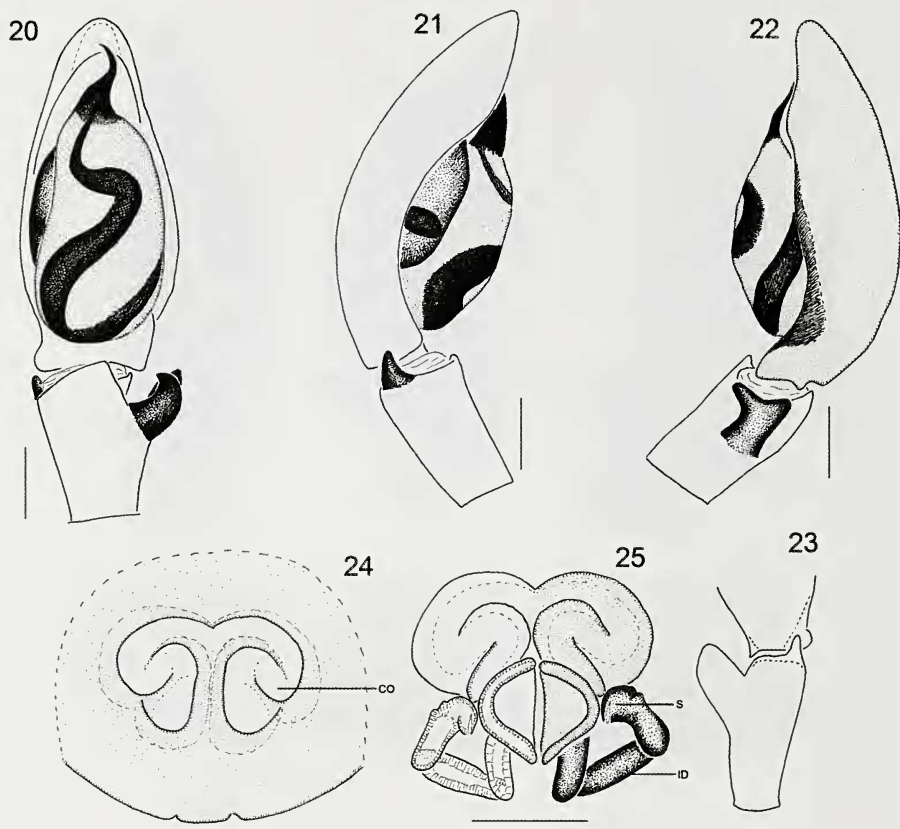
FIGS 15-19

*Allomedmassa mae* gen. & sp. nov.; male holotype (15-17), female paratype (18-19). (15) Left male palp, ventral view. (16) Ditto, proventral view. (17) Ditto, retrolateral view. (18) Epigyne, ventral view. (19) Internal genitalia, dorsal view. Abbreviations: CO, copulatory orifice; E, embolus; FD, fertilization duct; ID, insemination duct; P, prolateral tubercle on palpal tibia; RTA, retrolateral tibial apophysis; S, spermatheca; SR, accessory sperm receptacle; ST, subtegulum; T, tegulum. Scale lines = 0.1 mm.

I: Fe, p-1, d-11; Ti, v-2222222222; Mt, v-22; leg II: Fe, p-1, d-11; Ti, v-22222222, Mt, v-22; leg III: Fe, p-11, d-111; Ti, p-11, v-12, r-11; Mt, p-11, r-11, v112; leg IV: Fe, d-111, p-1, r-1; Ti, p-11, v-112, r-11; Mt, p-11, v-112, r-11.

**Coloration and pattern** (Fig. 8). Carapace anteriorly dark brown, posteriorly yellowish brown; chelicerae, labium and palpal coxae brown, distal part slightly paler than proximal part; sternum yellowish brown; anterior legs dark brown, posterior legs yellow. Opisthosoma ovoid; anterior median pigmentation indistinct; dorsum dark gray, with pale folium; venter pale.

**Genitalia** (Figs 13-14, 24-25). Epigynal region convex, heavily sclerotized; copulatory orifices situated medially, greatly enlarged, anteriorly fused together; internal genitalia represented by elongated, strongly convoluted insemination ducts and slightly enlarged posterior spermathecae; fertilization ducts short, elliptical.



FIGS 20-25

*Allomedmassa day* gen. & sp. nov.; male holotype (20-23), female paratype (24-25). (20) Left male palp, ventral view. (21) Ditto, prolateral view. (22) Ditto, retrolateral view. (23) Palpal tibia, dorsal view. (24) Epigyne, ventral view. (25) Internal genitalia, dorsal view. Scale lines = 0.1 mm.

NATURAL HISTORY: *Allomedmassa day* sp. nov. inhabits evergreen hill forests at moderately high altitudes (770-1700 m). Females were collected by sifting decomposing leaves and organic litter.

DISTRIBUTION: Northern and northeastern Thailand.

***Allomedmassa deelemanae* sp. nov.**

Figs 26-39

HOLOTYPE: ♂, Malaysia, Borneo Island, Sabah State, Tawau Division, fogging forest canopy in evergreen forests, leg. C. Deeleman (RMNH, not examined).

REMARKS: The holotype of this species has not been examined by the first author but it fits well with the definition of *Allomedmassa* gen. nov. and should be placed here (Deeleman-Reinhold pers. comm.). The male palp is quite peculiar, its retrolateral tibial apophysis is voluminous, almost as large as the tibia itself, and consists of a large bent outer lobe and a strongly chitinized inner part which ends



FIGS 26-29

*Allomedmassa deelemanae* gen. & sp. nov., male holotype. (26) Habitus, dorsal view. (27) Ditto, lateral view. (28) Ditto, ventral view. (29) Apex of left leg I with claw tufts, prolateral view.

distally in a strong spine or rod. The embolus is massive, very broad-based and not ending in a tapering spine as do the emboli of all other castianeirines but ending in a broad cup-shaped tip instead. The sperm duct is also sigmoid. The male of this new species can also be distinguished from those of congeners by six pairs of pronounced (not reduced as in the two congeners) spines on the ventral side of its anterior tibiae.

**ETYMOLOGY:** The species is dedicated to Dr Christa Deeleman-Reinhold, who collected the type specimen, helped with the description and provided insightful comments on the genus.

**DESCRIPTION OF MALE (HOLOTYPE):** Total length 9.9; prosoma 4.9 long; opisthosoma 5.0 long. Leg formula 1234. Leg measurements: Leg I 18.0 (5.0, 6.5, 4.5, 2.0), leg II 16.9 (4.6, 5.5, 4.8, 2.0), leg III 13.3 (4.0, 4.3, 3.5, 1.5), leg IV 12.4 (3.7, 4.0, 3.3, 1.4). Spination: Leg I: Fe, d-11, p-1; Ti, v-222222; Mt, v-22; leg II: Fe, d-11, p-1; Ti, v-222222; Mt, v-22.



FIGS 30-33

*Allomedmassa deelemanae* gen. & sp. nov., male holotype. (30) Prosoma, frontal view. (31) Anterior part of prosoma, ventral view. (32) Left leg I, prolateral view. (33) Spinnerets, ventral view.

*Coloration and pattern* (Figs 26-28, 30). Prosoma convex; carapace entirely black, covered with numerous pits; chelicerae dark brown; labium and palpal coxae reddish brown, distal areas pale; sternum reddish brown; legs orange, except proximal part of femora dark brown; tibiae and metatarsi pale proximally.

Opisthosoma elongate-ovoid, sparsely covered with black pubescence; dorsally with orange-brown pigmentation, its margin clearly outlined, covering entire dorsal surface of opisthosoma; dorsal pattern consisting of a pair of pale longitudinal patches, followed by six disconnected transverse chevrons; venter pale, with lightly sclerotized median band running from epigastric furrow to spinnerets.

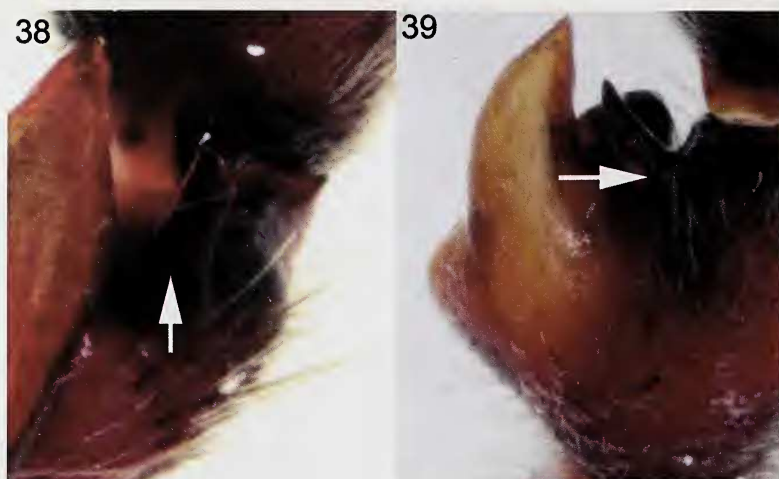
*Palp* (Figs 34-39). Palpal tibia with large, tripartite RTA consisting of a small, dark, retrodorsal tooth with pointed apex (Figs 38-39, indicated by arrow), a much larger, pointed, light-coloured retrolateral prong with a large bulging base, and a blunt, relatively wide dark retroventral ridge; tegulum ovoid, slightly excavated meso-pro-laterally, with sigmoid sperm duct running medially; embolus heavily sclerotized, represented by a transverse basal ridge, a distally twisted rectangular lamina, and a smaller dorso-prolateral projection.

FEMALE: Unknown.



FIGS 34-37

*Allomedmassa deelemanae* gen. & sp. nov., male holotype. (34) Left male palp, ventral view. (35) Ditto, prolateral view. (36) Ditto, retrolateral view. (37) Ditto, dorsal view.



FIGS 38-39

*Allomedmassa deelemana* gen. & sp. nov., male holotype. (38) RTA of left palp, with arrow indicating retrodorsal tooth, retrolateral view. (39) Ditto, dorsal view.

**NATURAL HISTORY:** The type of *A. deelemana* sp. nov. was collected by canopy fogging in an evergreen rain forest.

**DISTRIBUTION:** Known only from the type locality in northeastern Borneo.

## DISCUSSION

Leg spination has long been considered an important character in spider classification. Simon (1897) used the paired ventral spines on anterior legs for disguising Liocranidae and Corinnidae. Deeleman-Reinhold (2001: fig. 543) presented an illustration of the typical leg spination pattern of *Medmassa* in which the elongated and strongly erect spines on the ventral surface of the anterior tibiae are arranged in seven to ten pairs and situated on distinctly elevated sockets. The two Thai species of *Allomedmassa* gen. nov. do not fit within this pattern, and there are some significant discrepancies: their tibial spines are greatly reduced to short and weak spines and they are widely spaced. *Medmassa* and *Allomedmassa* gen. nov. both have two to three pairs of ventral spines on anterior metatarsi, and these spines are also reduced in *Allomedmassa* gen. nov. Similarly, the great majority of Asian species currently placed in the somatically homogenous *Medmassa* have a relatively low carapace. In *Allomedmassa* gen. nov., however, the attenuated carapace (Figs 1-2) has a strongly convex cephalic region, which is gradually sloping posteriorly (Fig. 27). The heart-shaped sternum lacks additional extensions in *Medmassa*, whereas in *Allomedmassa* gen. nov. the sternum is anteriorly excavated, and provided with triangular extensions fitting into coxal and intercoxal concavities (Figs 3, 28). Species of *Medmassa* lack a distinctive pigmentation on the opisthosoma, whereas it is present and clearly visible in the males of *Allomedmassa* gen. nov. (Figs 1, 7, 26).

It becomes apparent that although these two genera share some degree of somatic similarity, their genitalia are very different. The male palpal tibia of *Allomedmassa* gen. nov. bears a prolateral tubercle and a modified retrolateral apophysis. The tubercle is usually represented by a triangular prong (Figs 10-11, 16-17). The retrolateral apophysis is generally bifid in males of *Medmassa*, whereas in *A. mae* sp. nov. it is a single sharp point (Figs 9, 15), and in *A. day* sp. nov. it is broad, laterally expanded and distally bifid (Fig. 22). The ventral surface of the palpal tibia in *M. insignis* (Thorell, 1890), *M. tigris* (Deeleman-Reinhold, 1995) and *M. diplogale* Deeleman-Reinhold, 2001 is lined with an oblique row of long, conspicuous spines (see also Deeleman-Reinhold, 2001: fig. 534). These spines are erect and strong, while only normal setae can be found on the surface of the palpal tibia in *Allomedmassa* gen. nov. The apex of the cymbium is generally provided with a narrow ventral furrow to accommodate the slender embolus in males of *Medmassa* (Deeleman-Reinhold, 2001: figs 545-548), but it is relatively broad in males of *Allomedmassa* gen. nov. The sperm duct of *Allomedmassa* gen. nov. is relatively thick, running more or less along the longitudinal axis, whereas it is thinner and U-shaped in males of *Medmassa*.

The epigyne of *Allomedmassa* gen. nov. is readily recognized by a pair of greatly enlarged copulatory orifices situated on the heavily sclerotized epigynal plate (Figs 13-14, 18, 24), while the orifices are small and usually with a thickened margin in females of *Medmassa*. The simple, straight insemination ducts directly lead to the slightly enlarged, posteriorly situated spermathecae in *Medmassa*, whereas in *Allomedmassa* gen. nov. the insemination ducts and the spermathecae are not separated structures but the spermathecae are slightly enlarged distal continuations of the ducts (Figs 12, 14, 19, 25). Of interest is the modification of the internal duct system of *Allomedmassa* gen. nov. A pair of digitiform sperm receptacles originating on dorsal surface of the insemination ducts is present in *A. mae* sp. nov. (Figs 12, 19) but not in *A. day* sp. nov. (Figs 14, 25). The walls of these receptacles are penetrated by numerous gland ductules of variable size.

Although there are some noticeable differences between *Medmassa* and *Allomedmassa* gen. nov., they are closer to one another than to species of other genera in the Castianeirinae. The presence of paired ventral spines on anterior tibiae distinguishes *Pranburia*, *Medmassa* and *Allomedmassa* gen. nov. from the rest of the Castianeirinae. However, these spines are relatively common in phrurolithines. They possibly reflect a different life style and can be considered an adaptation instead of a phylogenetic heritage (apomorphy). It is possible, if unlikely, that ventral tibial spines are plesiomorphic and that their occurrence in these three genera is coincidental. A recent phylogenetic analysis placed *Medmassa* basally in the Castianeirinae (Haddad *et al.*, 2009) despite the fact that some characters do not conform well with typical Castianeirinae (Reiskind, 1969; Haddad, 2004).

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